FIBRE CHEMISTRY

Volume 25, Numbers 1-6, 1993

(A translation of *Khimicheskie Volokna*)

Engl./Russ.

Volume 25, Number 1, January-February, 1993

CHEMICAL AND TECHNOLOGY OF CHEMICAL FIBERS

Ceramic Fibers. A Review - V. Ya. Varshavskii 1 3

Technical and Economic Aspects of Regeneration of Processing Solutions - I. Z. Eifer 7 7

Kinetic Characteristics of Side Reactions of Isophthaloyl Chloride during Synthesis of Poly-m-phenyleneisophthalamide - N. I. Kuz'min, T. I. Podol'skaya, K. G. Khabarova, P. V. Smirnov, and B. I. Zhizdyuk 13 11

Hydraulic Resistance of a Deformable Layer of Fibrous Material - V. A. Shul'chishin 17 13

Effect of Molecular and Compositional Heterogeneity on the Rheological Properties of Cellulose Acetate Solutions - Kh. N. Musaev, T. I. Usmanov, M. Yu. Yunusov, and G. V. Nikonovich 21 15

Effect of Electric Heating on Ripening of Viscose - O. P. Laletina, E. N. Demina, N. A. Mazur, E. V. Voronova, and K. A. Malyshevskaya 25 18

Physicochemical Characteristics of Fabrication of Fibers from Mixtures of Polyacrylonitrile-based Polymers - I. Z. Zakirov 28 19

Prediction of Temperature Conditions in Laser Treatment of Chemical Fibers - B. M. Tarakanov 32 22

PHYSICOMECHANICAL PROPERTIES AND USE OF CHEMICAL FIBERS

Review of Some Specific Characteristics of Conducting Chemical Fibers - A. A. Nikitin 36 25

Dissolution and Use of Fibroin in Production of Chemical Fibers - A. L. Khamraev, D. B. Khudaiberdieva, S. D. Kamilova, Zh. A. Zgibneva, and N. I. Nabieva 42 30

Sample Preparation in Evaluating the Sorption Properties of Thermostable Fibers - Zh. Yu. Koitova, K. E. Perepelkin, A. T. Kynin, and G. G. Lebedeva 47 33

Structure of Vion An-1 Chemisorption Fiber as a Function of the Concentration of the Chemically Active Component - A. N. Gromov, B. A. Kadyrov, Kh. Dzhumanbaev, K. Dzhanobilov, and M. P. Zverev 51 35

Interaction of Gas and Liquid in Contact Devices Made of Woven Synthetic Materials - A. V. Serov and M. M. Borisenko 53 36

RESEARCH AT THE LITHUANIAN TEXTILE INSTITUTE

Phase Transitions and Internal Stresses in Textured Cellulose Acetate Fibers - Ya. Arlauskene, N. Duobinis, R. Zhiemyalis, R. Mukhamadeeva, and R. Shagidulin 56 38

Structure and Sorption Properties of Sized Diacetate Fibers - A. Yuryavichyute, Z. Kubaitis, and A. E. Chalykh 60 40

Compacting of the Weft Thread on a Shuttleless Loom - Z. Kubaitis 65 43

Effect of Temperature on the Properties of Man-Made Fur - I. Yanushauskene and A. Kuchingis 67 45

Volume 25, Number 2, March-April, 1993

CHEMISTRY AND TECHNOLOGY OF MAN-MADE FIBERS

Some Contemporary Concepts in the Area of Cellulose Structure and Properties - M. M. Iovleva 69 7

	Engl.	Russ.
Energy-Saving Technologies in Viscose Manufacture - V. D. Chernov, I. Z. Éifer, N. S. Markov, A. A. Yakobuk, and Yu. N. Fikhman	73	9
Selection of a Synthesis Regime for Reactors for the Experimental Production of Aromatic Polyamides - V. M. Ivanov, Z. P. Titova, and V. M. Savinov	75	10
Preparation of Cation-Exchange Polycaproamide Fibers - Yu. D. Andrichenko and T. V. Druzhinina	78	12
Kinetic Synthesis Features and Some Properties of Copolyamides Containing Chromophoric Groups in the Chain - N. N. Barashkov, G. M. Bulygin, and N. I. Kuz'min	82	14
Effect of Spinning Conditions on the Stationary Regime Region in Stretching a Jet of a Solution of Poly-p-phenyleneterephthalamide in an Air Gap - V. N. Kiya-Oglu, V. I. Ognev, and G. I. Kudryavtsev	86	17
Kinetic Conditions for the Forced Transition of Macromolecules of an Acrylonitrile Copolymer into the Uncoiled State - A. A. Kholmuminov, K. É. Érgashev, Yu. V. Brestkin, A. A. Darinskii, and S. A. Agranova	90	19
Forced Transition of Cellulose Macromolecules into the Uncoiled State in Amine Oxide Solutions - N. E. D'yakonova, A. M. Bochek, Yu. V. Brestkin, G. A. Petropavlovskii, and S. Ya. Frenkel'	94	22
Regulating Yarn Tension in Technological Flow Lines - V. F. Shumilov and N. I. Shumilova	98	24
PROPERTIES AND APPLICATION OF MAN-MADE FIBERS		
Physicomechanical Properties of Polyethylene Gel-Fibers at Various Stages of Orientation Stretch - S. A. Gordeev, V. G. Alekseev, V. N. Kaminskii, B. A. Tsaplin, and V. P. Galitsyn	101	26
A Study of the Resistance of F-42 Fiber in Fluorinating Media - D. M. Amirkhanov, T. A. Belousova, I. N. Andreeva, I. M. Velikanova, and M. N. Tul'skii	106	29
Vion Chemisorptive Fibers – Materials for Concentrating Uranium Ions and Noble-Metal Ions from Slightly Mineralized Natural Waters - V. E. Golomolzin, T. F. Kostina, G. O. Keshishyan, M. P. Zverev, and O. I. Yaroslav	110	31
Laminated Polypropylene Material – a New Form of Floor Covering - L. T. Gaida, L. A. Pershina, M. M. Maiboroda, S. T. Kolodyazhnyi, L. V. Kureina, and S. I. Ozerova	113	33
Sorption of Water by Modified Polyamide Films Containing Substituted Amino Groups - N. Yu. Mosina, L. P. Razumovskii, A. S. Aleksandriiskii, V. G. Zaikov, T. V. Druzhinina, and L. S. Gal'braikh	116	35
Sorptive Properties of Heat-Resistant Fibres Based on Aromatic Polymers - Zh. Yu. Koitova, K. E. Perepelkin, A. T. Kynin, and G. G. Lebedeva	120	37
Sorption Studies of the Structure of Carbon Fibers Derived from Pitch - L. Ya. Konovalova, G. S. Negodyaeva, E. G. Monastyrskaya, V. Ya. Varshavskii, and M. M. Iovleva	125	40
Separation of Stearox-6 from Aqueous Media by the Use of Hollow-Fiber Ultrafilters - K. R. Airapetyan, É. M. Aizenshtein, A. P. Borshchev, V. Yu. Nutskov, V. V. Romanov, and V. M. Girshgorn	128	41
Use of Electrodialysis to Desalinate Wash Water from the Manufacture of Viscose Textile Yarn - E. V. Vishnyakova, A. I. Gladkii, I. G. Shimko, I. A. Andriyuk, V. A. Parfenova, and B. D. Tur'yan	131	46
MANUFACTURING CONTROL		
Monitoring and Control of the Process of Yarn Preparation from a Polymer Melt by Its Tension - I. D. Pupyshev	136	50
Prediction and Control of Reliability of Measuring the Residual Moisture Content of Viscose Fibers - V. N. Baukin and V. M. Volodin	142	54

Engl./Russ.

A Method of Determining High-Molecular Fractions in Cellulose - O. P. Laletina, E. V. Voronova, I. V. Golubnichaya, I. V. Dolganova, and K. A. Malyshevskaya 146 56
Physicochemical Analysis of the System Polyacrylonitrile-Sodium Thiocyanate-Water in the Gel-Like State - V. F. Ur'yash, V. A. Maslova, I. A. Barsukov, and A. N. Mochalov 149 57

OBITUARY
Georgii Ivanovich Kudryavtsev 153 64

Volume 25, Number 3, May-June, 1993

CHEMISTRY AND TECHNOLOGY OF MAN-MADE FIBRES
Chemical Modification of Fibre-Forming Polymers Using the Recombination Addition Reaction (REVIEW) - B. É. Geller 155 7
Effect of Salts on the Thermo-Oxidative Stabilization and Carbonization of a Copolymer Based on Acrylonitrile - I. I. Ryskina, V. K. Zhukov, N. I. Panina, V. P. Biryukov, A. S. Mramornova, and E. A. Busyreva 167 14
Correlation and Regression Analysis of the Parameters of Spinning Solutions of Poly-m-Phenyleneisophthalamide - A. V. Dolgov and Yu. V. Glazkovskii 171 17
Microbiological Modification of Organic Fibres - E. V. Pisanova, V. S. Detsuk, M. B. Vainshtein, E. V. Voevoda, V. G. Grishchenkov, and V. V. Meshkov 174 18
Properties of Concentrated Solutions of Mixtures of Cellulose with Synthetic Polymers in the Zinc Chloride-Water System - D. D. Grinshpan, T. A. Savitskaya, T. D. Bil'dyukevich, L. A. Baran, L. G. Lushchik, and V. V. Romanov 179 21
Effect of Lateral and Central-Radial Sweeping on the Cooling of Complex Yarns - V. I. Eliseev, Yu. P. Sovit, L. A. Fleer, and A. M. Pankeev 182 23
Heat-Exchange of Complex Yarns with Allowance for the Crystallization Process - V. I. Eliseev, Yu. P. Sovit, and L. A. Fleer 186 26

PROPERTIES AND APPLICATION OF MAN-MADE FIBRES
Rational Technology for the Preparation of Polycaproamide Fibres with Reduced Shrinkage - V. A. Rodionov and A. P. Voitovich 190 28
Stress Relaxation during the Orientation Stretch of Synthetics Fibres - B. É. Geller 192 29
Properties of Short Mineral Fibres - V. G. Makarov, M. V. Apukhtina, A. P. Ustimova, O. É. Belyaeva, and S. M. Kashin 196 32
Preparation of Ultra-Thin Fibres from Two Polymers - A. P. Kuznetsov and T. G. Ivanova 199 34
Special Features in the Deformation Behavior of Polyethylene Gel-Fibres - S. A. Gordeev, V. N. Kaminskii, V. G. Alekseev, and G. I. Shelike 202 36
Use of Hollow Polysulfone Fibres in the Process of Dehydrating Acetic Acid by Evaporation through a Membrane - A. V. Varezhkin 206 38
Viscoelastic Properties of Technical Fabrics - L. N. Popov, A. G. Malanov, G. Ya. Slutsker, and A. M. Stalevich 211 42
Surface Modification of Nitron Fibre with Natural Silk Waste - I. A. Nabieva, A. L. Khamraev, K. É. Érgashev, and I. Z. Zakirov 215 44
Deformation of Technical Purpose Woven Tapes - L. N. Popov, A. G. Malanov, G. Ya. Slutsker, and A. M. Stalevich 217 45
Preparation of Integrally-Spun Viscose Sausage Casing Using Radiation-Modified Cellulose - A. K. Stavtsov, V. N. Drozdovskii, V. M. Irklei, T. A. Napalkova, and L. A. Mokrousova 221 47

	Engl.	Russ.
MACHINES AND APPARATUS		
Requirements on Heaters for High-Temperature Treatment Furnaces - V. A. Kosenok and V. P. Il'chuk	224	49
Dependence of Pump on Back-Pressure and Nonuniformity in Delivery of Liquid - V. I. Stupa, Yu. A. Chernyshov, and A. M. Kirichenko	227	51
INFORMATION		
In Memory of Boris Vladimirovich Petukhov - É. M. Aizenshtein	229	62

Volume 25, Number 4, July-August, 1993

The "Barmag" Company (German): Scientific and Manufacturing Activity	231	3
Cooperation with the Soviet Union and the Contemporary SNG	234	5
Barmag Company Equipment at Man-Made Fibre Plants of the SNG - V. I. Stupa	235	6
SP40: Contemporary Systems for Spinning Textile Yarns	237	7
Machines and Technology for the Manufacture of Textile Yarns Fully Drawn in a One-Stage Process	239	8
Machines for Spinning Microfibres	243	11
The SDM40/80: a Concept of the Barmag Company for the Manufacture of Technical Yarns	245	12
The STM25: a Machine for Spinning, Stretching, and Texurizing Yarns for Carpets and Household Articles	248	14
Barmag Winding Heads for Specific Applications: a Broad Program for Definite Purposes	251	16
FK6-12 Texturizing Machine	256	19
Texturing Microyarns by a Combined Method	258	20
Yarn Quality Control using the Unitens Instrument	259	21
New Concepts in Drives for Texturizing Machines	261	22
New High-Speed False Twist Units	263	23
Pneumo-Texturizing: a Barmag Concept	265	24
Diacont II – the "Barco" System: Product Quality Control by the "On-Line" System on Barmag Texturing Machines	267	25
Combining Drawing with Warping: Method Introduced	268	26
ACl0: a One-Process Technical Yarn Twisting Machine for Tire Cord Production	270	27
Twisting Machines with Double Twist Spindles	273	28
Barmag Machines for Plastics Processing: Quality, Economy, Reliability	275	29
Barmag Extruders: Experience as the Basis for Quality and Efficiency	278	31
Barmag 3DD Mixer: Very High Product Quality as a Result of Homogenicity and Uniform Mixing	280	32
Barmag Filter with a Large Surface Makes it Possible to Raise Process Economy and Product Quality	282	33
Gear Pumps for the Man-Made Fibre Industry	284	34
EKS Winding Heads: Gross Winding Heads for Yarns for a Number Regions of Application	286	35
FE1 Assembly for Fibre Preparation	288	36
MFE2 Compact Spinning Unit for Manufacturing High-Strength Polypropylene Yarns	290	38
Speetex STM16 Machine for Spinning, Stretching, and Texturing	292	39
SDM16 Unit for Production of Smooth Polypropylene Yarns	293	39
The FB7 Unit for Preparing Film-Type Toes	294	40
Model 3013 Twisting-Stretching Machine	296	41
Bikomat 320 – A Semiautomatic Machine for Precision Cross Winding	299	43
LFW 25 Model Takeup-Winding Mechanism	302	45

	Engl.	Russ.
Continuous Automation as an Economic Requirement of Customers	306	47
Automation of the Texturizing Process	309	49
Materials from the Scientific-Technical Conference "Improvement in Equipment for the Manufacturing of Manmade Yarns and Fibres" - V. I. Stupa	311	50
Basic Directions of Equipment Development for the Manufacture of Manmade Fibres and Yarns in the Khimtekhstil'mash Scientific-Production Association - V. I. Stupa	312	51
Development of Equipment for Spinning and Winding Synthetic Yarns - A. M. Pankeev, V. I. Stupa, and V. I. Sichevoi	315	52
Self-Bonding Anisometric Polymer Masses and Equipment for Manufacturing Them - O. I. Nachinkin	317	53
State and Prospects of Development for Equipment for the Manufacture of Nonwoven Materials - L. T. Gaida, P. I. Cherednichenko, M. M. Maiboroda, and V. V. Fisun	320	55
Equipment for the Manufacture of Anti-Dust and Sorptive-Filtering Respirators - B. D. Rysyuk, G. I. Malichev, B. Kh. Yunusov, S. T. Kolodyazhnyi, and V. D. Chesnokov	323	57
Apparatus Design of a Scheme for Preparing Polycaproamide for Spinning using Flake of Elevated Dispersity - A. L. Ignatenkov and E. K. Platonov	328	61
Study of a Pump Filling by a Polytechnical Amide Melt - V. I. Stupa, Yu. A. Chernyashov, A. M. Kirichenko, and I. M. Kulinich	331	62

Volume 25, Number 5, September-October, 1993

CHEMISTRY AND TECHNOLOGY OF MAN-MADE FIBRES

Mechanism of Polyacrylonitrile Fibre Spinning by the Thiocyanate Method - A. T. Serkov and G. A. Budnitskii	335	3
Mechanism of the Thermal Transformations of Polyacrylonitrile Fibres in Oxidation - I. V. Koshelev, V. N. Sokolovskii, L. A. Kotorlenko, E. P. Plygan', and V. P. Sergeev	342	8
Structure of Graft Copolymers Based on SVM Fibre and Polytetrafluoroethylene - Sh. A. Azizov and A. Valiev	348	11
Optical Activity and Rheology of Cellulose Acetate Solutions - N. A. Fedyakova	353	14
Spectroscopic Investigation of Polymers Dyed with Fluorescent Dyes - Naphthalimide Derivatives - Z. D. Tul'guk, R. N. Nurmukhametov, V. G. Klimenko, and L. I. Semenova	356	16

PROPERTIES AND APPLICATON OF MAN-MADE FIBRES

Carbon Fibres and Materials Based on Viscose Fibres (Review) - G. A. Budnitskii, V. S. Matveev, and M. E. Kazakov	360	19
Relationship between the Ultimate and Optimum Properties of Man-Made Fibres - S. P. Papkov	365	22
Thermal Properties of Polyacrylonitrile Copolymers Having Various Chemical Compositions - O. V. Zhidkova, I. N. Andreeva, M. B. Radishevskii, A. T. Serkov, A. T. Kalashnik, and N. V. Chichinova	368	25
Sorption of Copper Cations by Vion KN-1 Chemisorptive Fibre - B. M. Kats, R. M. Dlubovskii, L. M. Kutovaya, and I. V. Makarenko	371	27
A Three-Parameter Equation for Describing the Sorption of Water Vapor by Chemisorptive Fibres - B. M. Kats and V. V. Kutarov	374	28

Engl./Russ.

MACHINES AND APPARATUS

Basic Trend in the Development of Equipment for the Preparation of Carbon Fibres - M. M. Maiboroda 377 30

Development of Equipment for Heat Treatment of Carbon Fibres - V. A. Pirogov, S. I. Chaplinskii, V. A. Kezlya, and V. V. Ageev 383 33

Development of Equipment for the Manufacture of Synthetic Monofilaments and Bristles - V. A. Pirogov, S. I. Chaplinskii, V. V. Ageev, V. M. Golub, and V. A. Kezlya 386 36

New Technological Process for the Manufacture of Tire Cord and Its Apparatus Design - M. V. Bogdan, A. A. Grom, and A. F. Goncharenko 388 37

UG-10K Unit for the Preparation of Polycaproamide Flake Directly from the Melt - E. K. Platonov, V. T. Mikhailov, and A. M. Geimal 392 39

Equipment for Coloring a Melt of Polycaproamide in Bulk - V. A. Masich, M. V. Ivasenko, V. N. Sochevets, S. I. Bilimenko, N. S. Gaevskii, and T. N. Timchenko 394 40

Equipment for Spinning Ultrathin Synthetic Fibres - M. V. Tsebrenko, S. E. Zabello, and N. M. Rezanova 398 42

Directions in the Development of Cutting Media for the Preparation of Short Fibres - Yu. S. Kochura, V. M. Simkin, and A. I. Fuks 401 44

Filter Elements of the Wound Type - N. V. Rokotov, V. I. Plotkin, and V. A. Pimenova 404 46

PROTECTION OF THE ENVIRONMENT

Preparation of Sorptively Active Fibrous Materials to Monitor the State of the Environment and Protect It, and Their Properties - L. S. Gal'braikh, T. V. Druzhinina, L. A. Nazar'ina, M. V. Abramov, G. A. Gabrielyan, L. V. Gulina, and V. N. Korzun 408 49

Application of Terlon Fibre to Solve Ecological Problems - A. V. Volokhina, V. I. Ognev, I. K. Pronichkina, T. S. Sokolova, V. A. Kipillov, V. K. Kovalev, V. S. Morev, and G. V. Poroshin 414 53

Utilization of High-Strength Paraamide Fibres to Protect the Environment - L. V. Avrorova, V. V. Gvozdev, and B. Sh. Dadasheva 417 55

Carbon-Fibre Sorbents Based on Pitch - V. Ya. Varshavskii, M. A. Kozykina, and E. G. Monastyrskaya 420 56

Directions of Work in the Area of Preparing and Using Chemisorptive Fibres - M. P. Zverev 421 57

Properties of Chemically Metallized Chemisorptive Fibres and Regions of Their Application - I. N. Illarionov and A. P. Komarov 422 57

QUALITY CONTROL

A Method of Monitoring the Uniformity of a Material - I. D. Pupyshev 423 58

Volume 25, Number 6, November-December, 1993

CHEMICAL FIBRE CHEMISTRY AND TECHNOLOGY

Aromatic Polyamides of Para Structure with Substituents in the Side Chain of the Macromolecules and Fibres Based on Them: a Review - A. V. Volokhina 427 3

Problems in Transport of Solvents into Polymers in Production and Use of Chemical Fibres. A Review - S. P. Papkov 436 9

Appearance and Development of Polyconjugated Structures in Heat Treatment of Polyacrylonitrile Fibres - V. Ya. Varshavskii 442 13

Engl./Russ.

Study of the Conditions of Separation of Bicomponent Polyamide–Benzimidazole–Polysulfone Polymer - A. I. Suvorova, V. N. Provornyi, A. V. Parfent'ev, and A. V. Tokarev 446 16
Synthesis of Functionalized Polyisobutylenes on Mono- and Bifunctional Catalytic Systems - V. A. Speranskii, A. I. Nesmelov, and V. S. Byrikhin 450 18
Thermooxidative Decomposition of Nitrile Copolymers Containing Itaconic Acid Units - I. B. Klimenko, N. V. Platonova, B. M. Tarakanov, and S. P. Maiburov 453 20
Wet Spinning of Asymmetric Hollow Polysulfone Fibres by the Double Spinning Bath Method - A. V. Varezhkin 458 24
Solubility of Alkali Metal Chlorides and Hydroxides in Water - A. V. Skolunov 463 26

PROPERTIES AND USE OF CHEMICAL FIBRES
Thermal Stabilization of Aliphatic Polyamides and Fibres Based on Them. A Review - A. I. Chernukhina and G. A. Gabrielyan 468 30
Thermooxidative Decomposition and Combustion of Halogen–Tin-Containing Synthetic Fibres - O. N. Adyushkina, N. S. Zubkova, M. A. Tyuganova, E. D. Mikhailova, and N. G. Duderov 474 34
Fabrication of Oriented Polyester Fibre during High-Speed Spinning - V. E. Geller and L. A. Nikitina 479 37
Mathematical Model of Aerodynamic, High-Temperature Spinning of Fibres in Fabrication of Nonwoven Materials - A. V. Genis and A. L. Kalabin 482 39
Interaction of Mass Exchange and Jet Tension in Spinning of Nitron Fibres - Yu. M. Malyshev and B. E. Geller 487 41
Complex Evaluation of the Thermostability of Aromatic Fibres - K. E. Perepelkin, E. Yu. Gurova, S. A. Baranova, and A. T. Kynin 490 43
Technical and Economical Justification of the Use of Vion Chemisorptive Fibres - M. P. Zverev 498 48
Use of Chemical Fibres in Production of Geotextiles and Evaluation of Their Operating Properties - N. A. Lebedev 505 52